EXHIBIT A

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Paper 27
Date: April 9, 2025

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC, SAMSUNG ELECTRONICS CO., LTD.,
and SAMSUNG ELECTRONICS AMERICA, INC.,
Petitioner,

v.

NARISTE NETWORKS PTY. LTD.,
Patent Owner.

IPR2023-01374
Patent RE48,206 E

Before BENJAMIN D. M. WOOD, GEORGE R. HOSKINS, and RICHARD H. MARSCHALL, *Administrative Patent Judges*.

WOOD, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 314

I. INTRODUCTION

A. Background

Google LLC, Samsung Electronics Co., Ltd., and Samsung Electronics America, Inc. (collectively, "Petitioner") filed a Petition (Paper 1, "Pet.") requesting *inter partes* review of claims 37–45 of U.S. Patent No. RE48,206 E (Ex. 1001, "the '206 patent"). Nariste Networks Pty. Ltd. ("Patent Owner") did not file a preliminary response. We instituted *inter partes* review of the challenged claims on April 12, 2024. Paper 9 ("Dec."). After institution, Patent Owner filed a Response to the Petition (Paper 11, "PO Resp."), Petitioner filed a Reply to Patent Owner's Response (Paper 14, "Pet. Reply"), and Patent Owner filed a Sur-reply to Petitioner's Reply (Paper 15, "PO Sur-reply"). An oral hearing was held on January 14, 2025, a transcript of which is in the record. Paper 25 ("Tr.").

We have jurisdiction under 35 U.S.C. § 6 and issue this decision under 35 U.S.C. § 318(a). After considering the evidence and arguments of both parties, and for the reasons set forth below, we determine that Petitioner has shown by a preponderance of the evidence that claims 37–45 of the '206 patent are unpatentable.

B. Related Proceedings

Petitioner identifies *Nariste Networks Pty. Ltd. v. Samsung Elecs. Co., Ltd.*, No. 2:23-cv-00031 (E.D. Tex.) as a related matter. Pet. 2.

C. The '206 Patent

The '206 patent is a reissued patent titled "Reduced Power Use in Mobile GPS-Based Technologies," and relates to power conservation for

GPS-enabled devices. Ex. 1001, code (54), 1:22–24.[1] According to the '206 patent, "[t]echniques for the positioning of mobile devices in a wireless environment are important for a number of applications, such as emergency location services, ad hoc networks, and vehicle tracking." *Id.* at 1:28–31. The '206 patent teaches that mobile phones are generally equipped to determine their positions using Global Positioning Systems ("GPS") technologies, which "use line-of-sight measurements to satellites." *Id.* at 1:32–40.

"GPS-based techniques are known to provide accurate position measurements," but "are prone to a lengthy GPS acquisition time" when begun from a so-called "cold start" because "an exhaustive search to find the satellites in view" is required. Ex. 1001, 1:59–66. A cold start can be avoided by keeping the device's GPS receiver switched on at all times to allow the device to maintain up-to-date satellite positioning data, but keeping the device is this "hot-start mode" drains the device's battery resources to an unacceptable degree. *Id.* at 2:4–15. To address this problem, phones have been equipped to periodically power down the GPS receiver for a relatively short period of time, so that when the device is powered back on it "effectively commences in hot start mode." *Id.* at 2:37–42. The phone's user initially sets the "power-up period," or "P_u"; for example, "setting P_u=30 minutes means the GPS device powers up every 30 minutes to acquire a position fix." *Id.* at 2:46–49. "Once the fix is obtained (usually within seconds), the GPS device enters power-down mode." *Id.* at 2:49–51.

[1] The '206 patent is a reissue of U.S. Pat. No. 8,022,870, which claims priority to an Australian patent application filed September 4, 2004. Ex. 1001, codes (64), (30).

But "[s]imply guessing what value to set P_u is not optimal," according to the '206 patent. Ex. 1001, 2:52–53. The '206 patent therefore provides "a system for adaptively predicting when a GPS-enabled wireless communication device should be powered on" by monitoring P_u and automatically adjusting its value in response to changing circumstances to conserve battery power while maintaining desired position accuracy. Ex. 1001, 2:59–63, 3:40–44, 5:59–61, 6:24–28.

Figure 2 of the '206 patent is a "high-level block diagram of a system for adaptively predicting when a GPS-enable[d] wireless communication device should be powered on in accordance with an embodiment of the invention" (Ex. 1001, 3:40–43), and is reproduced below:

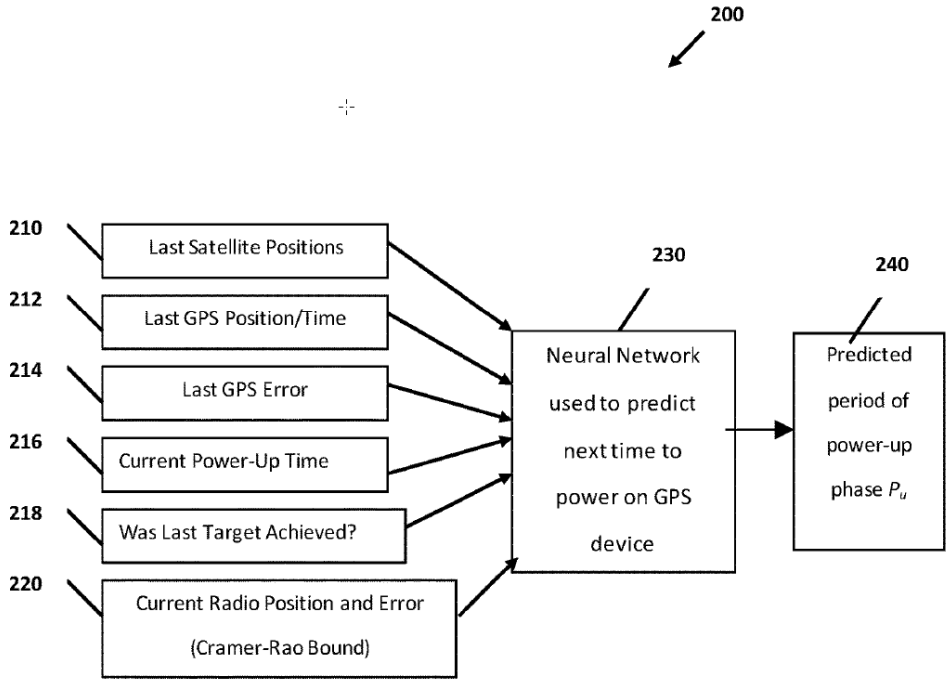

FIG. 2 (Amended)

As shown in Figure 2, system 200 comprises neural network module 230 that receives various inputs 210–220 to produce a predicted period of the

power-up phase P_u (i.e., the time interval between GPS power-ups) 240. Ex. 1001, 3:51–55. The predictions may depend upon various inputs including last satellite positions 210, last GPS position/time 212, last GPS error 214 (i.e., error between the predicted position of the mobile device and that of the actual position reported by its GPS), current power-up time 216, information about whether or not the last target was achieved 218 (i.e., whether accuracy requirements were satisfied), and current radio position and error 220. *Id.* at 6:56–62, 6:34–37.

D. The Challenged Claims

Petitioner challenges claims 37–45 of the '206 patent. Pet. 3. Claims 37, 40, and 43 are independent. Claim 37 is illustrative and is reproduced below:[2]

> 37. [Pre] A method of acquiring a position on a mobile wireless communication device for a wireless communications network, said mobile wireless communication device possessing wireless communications capability for said wireless communications network and an embedded GPS module for GPS capability, said GPS referring to GPS-based techniques, said method comprising:
>
> [A] determining when said embedded GPS module should be powered on, said embedded GPS module then being powered on,
>
> [B] said [determining[3]] when said embedded GPS module should be powered on being dependent on at least one of a

[2] We use Petitioner's bracketed identifiers for each limitation. *See* Pet. 19–27. We also omit the italics used to indicate that claim 37 is a reissue claim.

[3] In the Institution Decision we determined, based on our review of similar language in claims 40 and 43,that the word "determining" appears to have been inadvertently omitted from claim 37. Dec. 5 n.2. Neither party

> current radio position and a position error of said mobile device determined from the wireless communications network, said wireless communications network being different from said GPS.

Ex. 1001, 16:4–20.

Claim 40 is drawn to a mobile wireless communication device substantially as recited in the preamble of claim 37, the device comprising means for performing the method recited in claim 37. Ex. 1001, 16:29–47. Claim 43 is drawn to a computer program product for a mobile wireless communication device substantially as recited in the preamble of claim 37, the product embodied on a computer readable storage medium and comprising a portion designed to perform the method of claim 37. *Id.* at 16:56–17:9. Claims 38, 41, and 44 depend, respectively, from claims 37, 40, and 43, each additionally reciting "wherein said powered on comprises said module powering up from a low-power mode such as a TricklePower power-down mode." *Id.* at 16:21–23, 16:48–50, 17:10–13. Claims 39, 42, and 45 depend, respectively, from claims 37, 40, and 43, and additionally recite "wherein said determining when said embedded GPS module should be powered on is also dependent on at least one of: a last satellite position; a last position determined by the GPS; and a last time determined by the GPS." *Id.* at 16:24–28, 16:51–55, 17:14–19.

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objected to that determination in subsequent briefing. We therefore construe claim 37 as reciting "said determining . . . ". *See Fitbit, Inc. v. Valencell, Inc.*, 964 F.3d 1112, 1119–20 (Fed. Cir. 2020) (holding that the Board erred in not correcting a "conspicuous" and undisputed error related to antecedent basis).

E. Asserted Grounds of Unpatentability

Petitioner contends that the challenged claims are unpatentable based on the following specific grounds (Pet. 3–4):

Ground	Claims Challenged	35 U.S.C. §	Reference(s)/Basis
1	37–45	103(a)[4]	Watters[5]
2	37, 40, 43	103(a)	Nohara[6]
3	38, 41, 44	103(a)	Watters, Lau[7]
4	37–45	103(a)	Watters, Nohara
5	38, 41, 44	103(a)	Watters, Nohara, Lau

Petitioner also relies on the Declaration and the Reply Declaration of Scott Andrews. Ex. 1002; Ex. 1042. Patent Owner relies on the Declaration of Dr. Samuel Pullen. Ex. 2001.

[4] Because the '206 patent claims priority to an application filed before the effective date of the amendment to 35 U.S.C. § 103 enacted by the Leahy-Smith America Invents Act (AIA), we assume that the pre-AIA version of this statute applies. *See* AIA, Pub. L. No. 112–29, § 3(n)(1), 125 Stat. 284, 293 (2011). The outcome of this case would be the same under the AIA version, however.

[5] U.S. Patent No. 5,982,324 (issued Nov. 9, 1999) (Ex. 1005).

[6] U.S. Patent Appl. Pub. No. 2002/0151314 A1 (published Oct. 17, 2002) (Ex. 1006).

[7] U.S. Patent No. 6,975,941 B1 (issued Dec. 13, 2005) (Ex. 1007).

II. ANALYSIS

A. Legal Standards

"In an IPR, the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable." *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify "with particularity . . . the evidence that supports the grounds for the challenge to each claim")); *Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in *inter partes* review).

A claim is unpatentable under 35 U.S.C. § 103 if "the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious . . . to a person having ordinary skill in the art to which said subject matter pertains." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) when in evidence, objective evidence of nonobviousness, i.e., secondary considerations. *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17–18 (1966).

B. Level of Ordinary Skill in the Art

Petitioner contends that, for the '206 patent:

> One of ordinary skill in the art would have had a bachelor's degree in electrical engineering, computer engineering, computer science, or a related field, and at least two years of experience in the research, design, development, and/or testing

> of GPS and/or cellular positioning devices and techniques, and related firmware and software, or the equivalent, with additional education substituting for experience and vice versa.

Pet. 7 (citing Ex. 1002 ¶¶ 33–69). Patent Owner concurs with this definition. PO Resp. 14.

We adopt the parties' definition of the level of ordinary skill in the art. We also presume that the cited prior-art references reflect the level of ordinary skill at the time of the invention. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (explaining the level of ordinary skill in the art may be evidenced by the cited references themselves).

C. Claim Construction

We construe claim terms "using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. [§] 282(b), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent." 37 C.F.R. § 42.100(b). Under this standard, claim terms are generally given their plain and ordinary meaning as would have been understood by a person of ordinary skill in the art at the time of the invention and in the context of the entire patent disclosure. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc). Any special definitions for claim terms must be set forth in the Specification "with reasonable clarity, deliberateness, and precision." *See In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). We discuss the following claim construction issues raised by the parties.

1. *"means for determining when said embedded GPS module should be powered on, said embedded GPS module then being powered on . . . dependent on at least one of a current radio position and a position error of said mobile device determined from the wireless communications network, said wireless communications network being different from said GPS" (Claim 40)*

Petitioner considers the above limitation to be a means-plus-function limitation under 35 U.S.C. § 112(f). Pet. 8 (citing *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348 (Fed. Cir. 2015)). Petitioner asserts that the recited function is "determining when said embedded GPS module should be powered on, said embedded GPS module then being powered on dependent on at least one of a current radio position and a position error of said mobile device determined from the wireless communications network, said wireless communications network being different from said GPS." *Id.* at 10–11. Petitioner further asserts that the structure disclosed in the '206 patent corresponding to this function is a "CPU or other processing unit programmed with a thresholding algorithm to determine when to power on said embedded GPS module based on comparing at least one of a position and position error to one or more thresholds, and equivalents." *Id.*

Patent Owner "does not dispute Petitioners' identified recited function and corresponding structure for this term." PO Resp. 15.

We adopt the parties' agreed-upon construction for the above term.

2. *"at least one of a current radio position and a position error of said mobile device" (Claims 38, 40, and 43)*

Petitioner contends that this term may be construed "disjunctively," meaning that the GPS's power-on state can depend on either a current radio position *or* a position error; or the term can be interpreted "conjunctively,"

which would require the power-on state to depend on both a current radio position *and* a position error. Pet. 11. According to Petitioner, however, "the Board need not resolve the alternative 'disjunctive' and 'conjunctive' constructions . . . because the prior art grounds in this petition render obvious the claims under either interpretation." *Id.* at 11–12.[8]

Patent Owner responds that "this term should be interpreted according to the 'disjunctive' interpretation provided by the Petition." PO Resp. 15.

"[T]he phrase 'at least one of' means 'one or more.'" *SuperGuide Corp. v. DirectTV Enterprises, Inc.*, 358 F.3d 870, 886 (Fed. Cir. 2004) (citing *Rhine v. Casio, Inc.*, 183 F.3d 1342, 1345 (Fed. Cir. 1999). But when the phrase is used in a claim, "the issue . . . is what does 'at least one of' modify?" *Id.* In *SuperGuide*, the court construed the term "storing at least one of a desired program start time, a desired program end time, a desired program service, and a desired program type" to require storing at least one value for *each* of the four listed categories, i.e., a desired program start time, a desired program end time, a desired program service, *and* a desired program type. *Id.* Notably, in that case, each category comprised many possible values. *Id.*

Superguide did not, however, establish a *per se* rule that a limitation containing the phrase "at least one of" followed by "and" should be read conjunctively.[9] For example, courts and the Board "have found *SuperGuide*

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[8] Although Petitioner asserts that we need not resolve this question, we note that Petitioner's proposed ground of unpatentability based on Nohara is premised only on the disjunctive interpretation. *See* Pet. 46 ("Nohara teaches the claims under the 'disjunctive' interpretation.").

[9] *See L.A. Biomed. Res. Inst. at Harbor-UCLA Med. Ctr. v. Eli Lilly & Co.*, 849 F.3d 1049, 1059 (Fed. Cir. 2017) (holding that the plain meaning of "an

inapplicable when the listed items following 'at least one of' are not categories containing many possible values." *Apple, Inc. v. Evolved Wireless LLC*, 2017 WL 6543970, at *4 (PTAB Dec. 20, 2017) (listing district court and Board decisions). We agree with this understanding of *SuperGuide*; for example, it would not make sense to say "at least one of 'A'" if there was only one possible 'A.'

Here, of course, there can be only one possible value for "*current* radio position." The mobile device cannot be in two places at the same time. Further, we find nothing in the Specification of the '206 patent to support the possibility of multiple values for "position error" associated with a single current radio position. Therefore, we interpret the claim term disjunctively; e.g., determining when the embedded GPS module should be turned on is dependent on current radio position *or* position error (or both).

3. "a position error of said mobile device determined from the wireless communications network" (Claims 37, 40, and 43)

Patent Owner contends that "the term 'position error' should be given its plain [and] ordinary meaning, that is a measurement of error measured in units of distance." PO Resp. 15. Petitioner responds that "there is no basis to read the claims so narrowly." Pet. Reply 2; *see also id.* at 4 ("the '206 Patent does not discuss any units associated with position error.").

As our consideration of the asserted grounds of unpatentability is not affected by the outcome of this dispute, we need not address it. *See Nidec*

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individual with at least one of penile tunical fibrosis and corporal tissue fibrosis" is an individual with penile tunical fibrosis and/*or* corporal tissue fibrosis (emphasis added)).

Motor Corp. v. Zhongshan Broad Ocean Motor Co., 868 F.3d 1013, 1017 (Fed. Cir. 2017) (approving Board decision not to construe claim language where the construction is not material to the dispute).

D. Ground 1: Asserted Obviousness of Claims 37–45 Over Watters

Petitioner contends that claims 37–45 would have been obvious over Watters. Pet. 19–37. Patent Owner opposes. PO Resp. 17–23.

1. Watters (Ex. 1005)

Watters is titled "Combining GPS With TOA [Time of Arrival] / TDOA [Time Difference of Arrival] of Cellular Signals to Locate Terminal," and describes combining GPS technology and cellular technology to provide position information to a mobile terminal. Ex. 1005, codes (54), (57).

Figure 10 of Watters is reproduced below.

FIG. 10

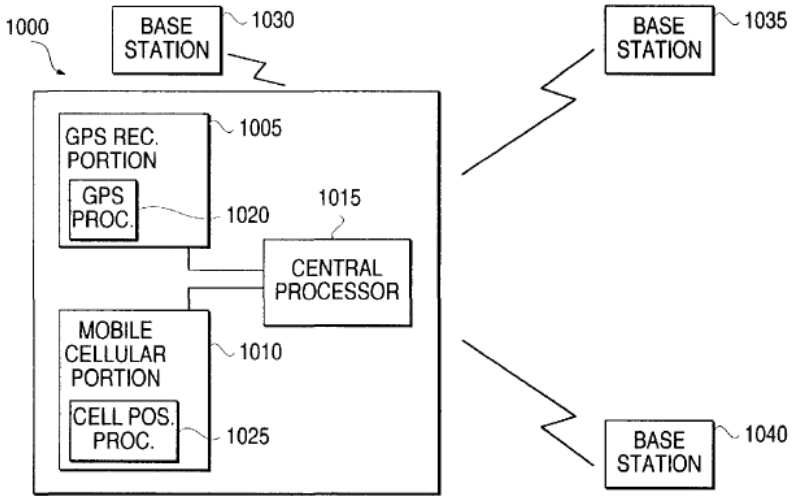
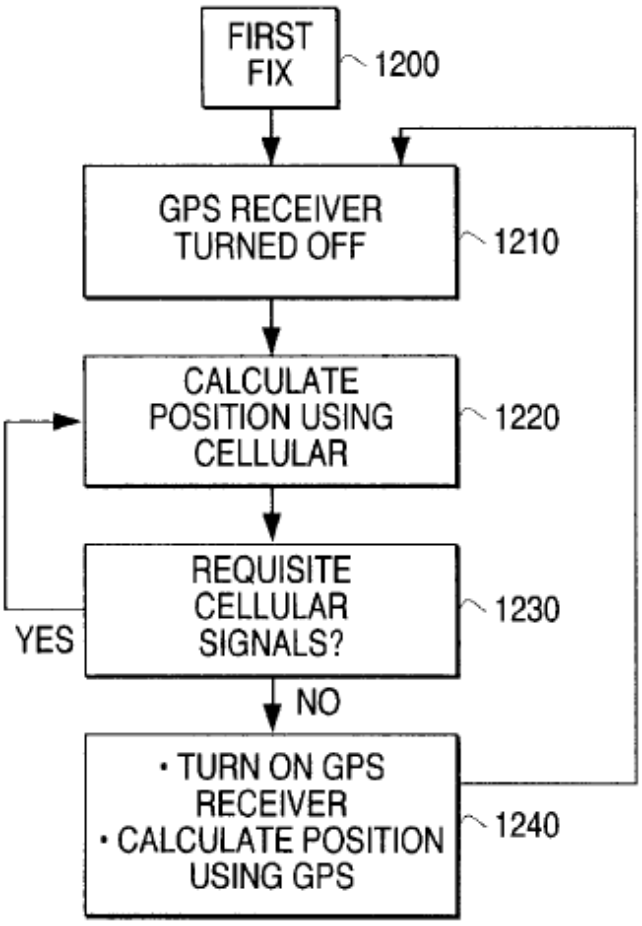


Figure 10 above is a block diagram of a cellular network comprising mobile terminal 1000 and base stations 1030, 1035, and 1040. *Id.* at 9:21–23, 19:48–50, 19:58–62. Mobile terminal 1000 includes GPS receiver portion

1005, mobile cellular portion 1010, and central processor 1015. *Id.* at 19:48–50. GPS receiver portion 1005 includes GPS processor 1020 for calculating position using the GPS system, and mobile cellular portion 1010 contains cellular position processor 1025 for computing position using the cellular network. *Id*. at 19:54–58.

Watters discloses that "GPS provides good accuracy of position," but "[t]o save power consumption (i.e., save battery power), it may be desirable to rely on the cellular network infrastructure to calculate position." *Id.* at 22:25, 22:38–40. This approach is illustrated by a flowchart depicted in Figure 12 of Watters, reproduced below:

FIG. 12



As shown in the Figure 12 flowchart, a mobile terminal: (1) uses its GPS receiver to obtain a "first fix"[10] (step 1200); (2) turns off its GPS receiver to save power (step 1210); and (3) determines its position again using a cellular network rather than GPS (step 1220). Ex. 1005, 22:47–50. At step 1230, "a determination is made whether the requisite number of signals in the cellular network infrastructure are available for calculating position (e.g., three signals in the TDOA approach)." *Id.* at 22:50–54. "Alternative inquiries at block 1230 include determining how long (in time) it has been since the last GPS update and/or how far (in space) the mobile terminal has moved since the last GPS update." *Id.* at 22:57–60. For example, if "a predetermined amount of time has passed, such as two minutes, or the mobile terminal has moved a predetermined distance, such as 100 meters, then a GPS update would be called for and the process proceeds to block 1240" (turning on GPS receiver and calculating position using GPS). *Id.* at 22:60–64.

2. Independent Claim 37

a. Preamble and Limitation 37[A]

The preamble to claim 37 (37[Pre]) recites a method of acquiring a position on a mobile wireless communication device that has both wireless

[10] "[W]hen the GPS receiver is first turned on, it must calculate its initial position. This initial determination is known as a 'first fix' on location. Typically, the receiver must first determine which satellites are in clear view for tracking. If the receiver is able to immediately determine satellite visibility, the receiver will target a satellite and begin its acquisition process. If there is no almanac or position information already stored in the receiver, then the GPS receiver enters a 'search the sky' operation that searches for satellites. Once the satellites are tracked, the receiver begins receiving the necessary data." Ex. 1005, 2:39–49.

communication capability for a wireless communications network and an embedded GPS module for GPS capability. Ex. 1001, 16:4–10. Limitation 37[A] recites the step of determining when to power on the embedded GPS module, and then powering on the GPS module. *Id.* at 16:11–13. Petitioner contends that Watters teaches 37[Pre] "to the extent [it is] limiting." Pet. 20–22 (citing Ex. 1005, 19:48–49, 54–58, Fig. 10; Ex. 1002 ¶¶ 91–94). Petitioner also contends that Watters teaches limitation 37[A]. *Id.* at 24–25 (citing Ex. 1005, 22:41–43, 22:47–23:2, Fig. 12; Ex. 1001 ¶¶ 99–102).

Patent Owner does not dispute that Watters teaches 37[Pre] and limitation 37[A]. PO Resp. 17.

Having reviewed the record evidence cited by Petitioner, we find that Petitioner has shown be a preponderance of the evidence that Watters teaches the preamble of claim 37 and limitation 37[A].

b. Limitation 37[B]

(1) The Parties' Positions

Petitioner contends that Watters teaches limitation 37[B] because "it teaches to use both a 'current radio position' and a 'position error' to determine when to switch from cellular based positioning and power on GPS-based positioning." Pet. 27. Because, as discussed above, this limitation is satisfied when either current radio position or position error is used to determine when to power on a mobile device's GPS module, we focus on Petitioner's argument that Watters teaches GPS power-on determinations based on current radio position.

For this argument, Petitioner relies on the method depicted in Figure 12 of Watters. Pet. 27–33. Petitioner provides an annotated version of

Figure 12 combined with Figure 3 of Watters, which we reproduce below, to aid our discussion (*see id.* at 28):

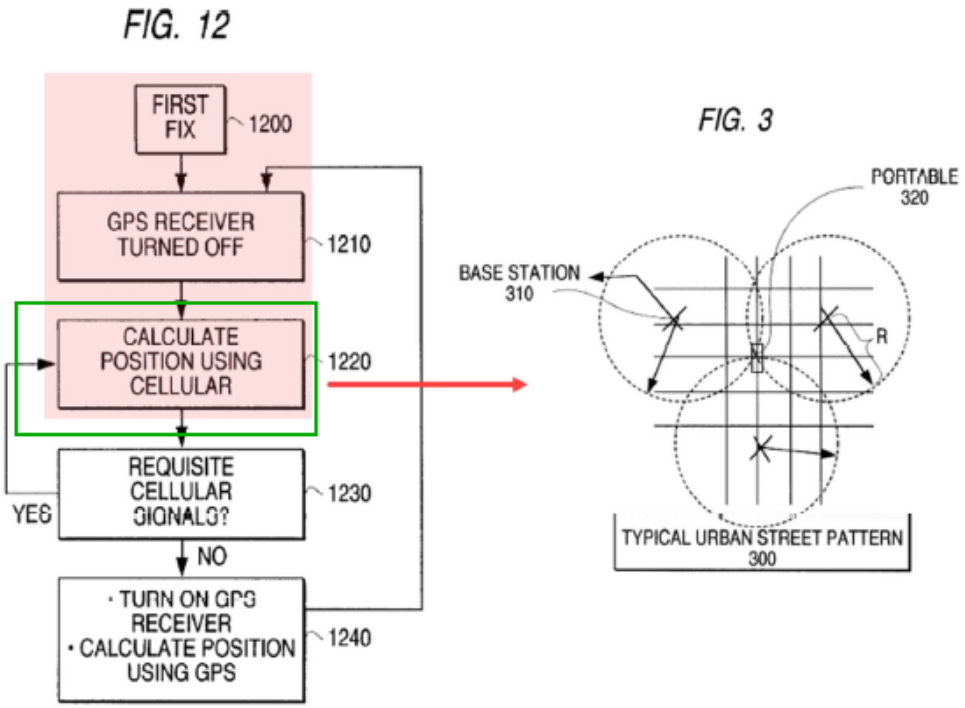


Figure 12 of Watters (above left) is a flowchart depicting a method for saving a mobile device's battery power by using a cellular network to calculate position. Ex 1005, 22:36–47. Petitioner highlights (in red) steps 1200 ("first fix"), 1210 ("GPS receiver turned off"), and 1220 ("calculate position using cellular"), and indicates (using a green box and red arrow) that step 1220 is illustrated by Figure 3 of Watters (above right).

Referring to its annotated versions of Figure 12, Petitioner asserts that "Watters teaches obtaining a 'first fix' from GPS, then with 'GPS receiver turned off,' 'calculat[ing] position using cellular.'" Pet. 27–28 (citing Ex. 1005, Fig. 12). Petitioner contends that the position determined using the cellular network in accordance with step 1220 corresponds to the claimed "current radio position . . . determined from the wireless communications network, said wireless communications network being different from said

GPS." *Id.* at 29 (citing Ex. 1005, Fig. 12). Next, asserts Petitioner, the mobile device determines whether its embedded GPS receiver should be powered on (step 1230) dependent on the position acquired at step 1220 because Watters discloses "determining how far (in space) the mobile terminal has moved since the last GPS update." *Id.* at 29 (citing Ex. 1005, 22:59–60). Petitioner submits that "[a] POSITA would have understood that determining 'how far' a device has traveled requires knowing the starting position and the current position at the time the determination is made." *Id.* at 29–30 (citing Ex. 1002 ¶ 108). Petitioner further contends that "[t]he starting position is the position determined by GPS at the last update (step 1200), and the current position is the position determined by the cellular network at step 1220." *Id.* at 30. Accordingly, submits Petitioner, "determining 'how far' the device has traveled is based on the current radio position of the device determined by the cellular network." *Id.*

Patent Owner disagrees that determining how far a device has traveled requires knowing the starting position and the current position at the time the determination is made. PO Resp. 20. According to Patent Owner, "[d]etermin[ing] how far something has traveled can be calculated simply by multiplying its velocity by the time it has traveled." *Id.* (citing Ex. 2001 ¶¶ 31–34). Patent Owner submits that "Watters explicitly discloses using a time between the last GPS measurement as a basis for powering Watters' GPS receiver on," and that one of ordinary skill in the art would have known that the device's velocity can be determined, e.g., by using "Doppler shift of a radio signal," which does not require "determining a mobile device's current radio position." *Id.* at 20–21 (citing Ex. 1005, 22:57–59; Ex. 2001 ¶ 35). Patent Owner also asserts that "the incorporation of accelerometers in

mobile devices could be used to determine distance moved with no need for knowledge of starting position because accelerometers only provide information relative to when the mobile device [is] moving." *Id.* at 21 (citing Ex. 2001 ¶ 36); *see* Ex. 2001 ¶ 36 ("data from accelerometers present in a mobile device could be integrated (via calculus) over a selected time interval to determine how far the mobile device has moved.").

Petitioner replies that Watters "specifically teaches to determine whether the device has traveled a 'predetermined distance' and use that information to decide whether GPS should be turned back on," and "[a] POSITA would have understood that an obvious way to determine this distance in space would have been to use the starting position determined by the GPS 'first fix' (step 1200), and the difference from the current position determined by the cellular network at step 1220." Pet. Reply 8–9 (citing Ex. 1042 ¶ 23). Petitioner asserts that Patent Owner's arguments regarding possible ways to determine distance traveled without determining the mobile device's current radio position are not "connected to Watters's actual teachings," because "Watters simply does not teach anything about using 'velocity' or 'speed' of an object to calculate a distance traveled," and "does not mention 'doppler shifts' at all." *Id.* at 9–10.

Patent Owner responds in its Sur-reply that although "Petitioner[] assert[s] that 'Watters plainly uses a difference in "position" determined by the cellular network (at step 1220) to turn on GPS,'" Petitioner "cite[s] to no disclosure in Watters that describes such a use of position." PO Sur-reply 3. Patent Owner disagrees that "use of position is obvious to calculate distance" because "there are many ways to calculate a distance, such as measuring doppler shifts of signals or using internal accelerometer data." *Id.*

at 3–4 (citing Ex. 2001 ¶¶ 33–37). Patent Owner further contends that "Doppler shift can be measured with respect to any radio signal, even when a 'current radio position . . . determined from the wireless communication network' cannot be obtained." *Id.* at 4 (citing Ex. 2001 ¶ 35).

(2) Discussion

In the process depicted in Figure 12 of Watters, a mobile device obtains a first position fix using an embedded GPS receiver (step 1200), turns the GPS receiver off to save battery power (step 1210), and then calculates position using a cellular network (step 1220). Ex. 1005, 22:38–40, 47–50; Fig. 12. The mobile device may then turn its GPS receiver back on and recalculate its GPS position (step 1240) depending on, e.g., "how far (in space) the mobile terminal has moved since the last GPS update" (step 1230). *Id.* at 22:57–60. We agree with Petitioner that one of ordinary skill in the art at the time of the invention would have understood Watters to teach GPS power-on determinations based on current radio position by using the device's current position obtained in step 1220 to determine how far in space the device has moved.

First, Watters teaches that the relevant distance moved is relative to "the last GPS update," with the "last GPS update" referring to the "first fix" acquired in step 1200. *See* Ex. 1005, 22:57–60; *id.* at 2:39–49 ("first fix" means initial position determined by GPS). Watters thus teaches that the starting point for the step 1230 inquiry regarding distance moved is based on information acquired in step 1200. Although Watters does not go on to expressly teach determining how far the device has moved away from the step 1200 GPS fix by comparing that GPS fix with the cellular-network-based position acquired in step 1220, it strongly suggests doing so by

teaching acquiring the cellular-network position in the very same process that requires both determining how far the device has moved and the starting point (the GPS fix) for that determination. *See In re Baird*, 16 F.3d 380, 383 (Fed. Cir. 1994) (a "reference must be considered not only for what it expressly teaches, but also for what it fairly suggests."). In other words, by teaching acquiring information that can be used to determine distance moved, *and then teaching determining distance moved*, Watters strongly suggests using the already-acquired information to perform the distance-moved calculation.

We acknowledge that one of ordinary skill in the art may have been aware of ways a mobile device could have determined the distance it has traveled without using the device's current position (e.g., multiplying elapsed time by velocity determined by Doppler-shift calculations, or using the device's on-board accelerometers). PO Resp. 20–21. But even if it might have been obvious to one of ordinary skill in the art to calculate distance moved in these other ways, that would not mean that Watters fails to suggest calculating distance moved based on current position or that it would not have been obvious to do so based on Watters' teachings. There can be more than one approach that would have been obvious to one of ordinary skill in the art. *Cf. Dome Patent L.P. v. Lee*, 799 F.3d 1372, 1381 (Fed. Cir. 2015) ("Just because better alternatives may exist in the prior art does not mean that an inferior combination is inapt for obviousness purposes.") (internal quotation marks and citation omitted). This is particularly true given that Watters teaches acquiring the current position and previous GPS position as part of the same process that determines

distance moved, but does not teach using the device's velocity or accelerometers as part of this process (or in any other relevant context).

For the above reasons, we find that Watters teaches or suggests limitation 37[B].

c. Summary as to Claim 37

For the above reasons, we determine that Petitioner has shown by a preponderance of the evidence that Watters teaches or suggests all of the limitations of claim 37. We further determine that the subject matter of claim 37 would have been obvious over Watters.

3. Independent Claims 40 and 43

Petitioner argues that independent claims 40 and 43 would have been obvious over Watters based on the same analysis discussed above in connection with claim 37. Pet. 19–33. Patent Owner does not respond with any patentability arguments directed to independent claims 40 and 43 that were not raised in connection with claim 37. PO Resp. 17–22. Accordingly, for the reasons discussed above, we determine that Petitioner has shown by a preponderance of the evidence that Watters teaches or suggests all of the limitations in claims 40 and 43, and accordingly we determine that claims 40 and 43 would have been obvious over Watters.

4. Dependent Claims 38, 41, and 44

Dependent claims 38, 41, and 44 depend, respectively, from claims 37, 40, and 43, and additionally recite "wherein said powered on comprises said module powering up from a low-power mode such as a TricklePower power-down mode." Ex. 1001, 16:21–23, 16:48–50, 17:10–13. Petitioner primarily relies on claim 6 of Watters, which "teaches that the GPS receiver may be only '***substantially*** turned off' when a requisite number of cellular

signals are being received." Pet. 35 (quoting Ex. 1005, claim 6; citing Ex. 1002 ¶¶ 119–120). Petitioner contends that "[a] POSITA would have understood that the GPS system may be 'substantially [but not completely] turned off' by maintaining a low, keep-alive power to the device," and "when the GPS system was needed it would be fully powered up from a low-power or idle mode." *Id.* (citing Ex. 1002 ¶ 119) (alteration in original). Petitioner supports this contention with the testimony of its declarant, Mr. Andrews. *Id.* Petitioner also notes that the '206 patent admits that the "TricklePower" power-down mode was known in the art at the time of the invention. Pet. 34 n.12 (citing Ex. 1001, 2:42–46).

Patent Owner does not respond to this analysis or otherwise raise arguments specifically addressing the patentability of claims 38, 41, and 44 apart from their respective parent independent claims.

Having reviewed Petitioner's analysis and supporting evidence, we determine that Petitioner has shown by a preponderance of the evidence that Watters teaches or suggests all of the limitations of claims 38, 41, 44. We further determine that Petitioner has established that the subject matter of these claims would have been obvious over Watters.

5. Dependent Claims 39, 42, and 45

Dependent claims 39, 42, and 45 depend, respectively, from claims 37, 40, and 43, and additionally recite "wherein said determining when said embedded GPS module should be powered on is also dependent on at least one of: a last satellite position; a last position determined by the GPS; and a last time determined by the GPS." Ex. 1001, 16:24–28, 51–55, 17:14–18. For the reasons discussed above in connection with our construction of "at least one of a current radio position and a position error," we consider the

limitation "at least one of: a last satellite position; a last position determined by the GPS; and a last time determined by the GPS" to be satisfied by any one of the listed options. Petitioner implicitly agrees. *See* Pet. 36 (claims 39, 42, and 45 satisfied by showing only that "the determination of when to power up the GPS function . . . depends, at least in part, on the last GPS-determined position").

Petitioner contends that Watters teaches determining when to power up the mobile device's GPS function based not only on a current radio position (as discussed above), but also on "the last position determined by the GPS." Pet. 36. According to Petitioner, "a POSITA would have understood that the last GPS-determined position would be a position compared to the cellular position, for determining whether the '100 meter' movement threshold . . . was exceeded, and that the determination of when to power up the GPS function thus depends, at least in part, on the last GPS-determined position." *Id.* (citing Ex. 1002 ¶ 123).

Patent Owner responds that "a distance moved is 'relative' and can be determined without using any position measurements at all, either from the GPS or from the non-GPS 'wireless communications network' recited by the independent claims of the '206 patent." PO Resp. 22.

We agree with Petitioner that Watters teaches using the last position obtained from GPS as well as the current radio position obtained from the cellular network to determine whether the mobile device should power up its GPS receiver and receive a GPS fix. Watters specifically teaches that when the mobile device's GPS receiver is turned on depends on "how far (in space) the mobile terminal has moved *since the last GPS update*." Ex. 1005, 22:54–60 (emphasis added). As noted above, the "last GPS update" is the

"first fix" obtained from GPS in step 1200 of the power-saving method depicted in Figure 12 of Watters. Thus, Watters expressly teaches basing the power-up decision at least in part on the last position determined by the GPS. And as discussed above in connection with the challenged independent claims, Watters teaches determining "how far (in space) the mobile terminal has moved since the last GPS update" by comparing the GPS fix with the mobile terminal's current position calculated using the cellular network. Therefore, Petitioner has shown by a preponderance of the evidence that Watters teaches or fairly suggests all of the limitations of claims 39, 42, and 45. Accordingly, we determine that Petitioner has established that the subject matter of claims 39, 42, and 45 would have been obvious over Watters.

6. Ground 1 Summary

Having reviewed Petitioner's contentions and Patent Owner's responses thereto, we determine that Petitioner has demonstrated that the subject matter of claims 37–45 would have been obvious over Watters.

E. Ground 2: Asserted Obviousness of Claims 37, 40, and 43 over Nohara

Petitioner contends that claims 37, 40, and 43 would have been obvious over Nohara. Pet. 37–52. Patent Owner opposes. PO Resp. 24–27.

1. Nohara

Nohara teaches, *inter alia*, a mobile device ("mobile station") that can determine its position either from signals received from wireless cellular base stations or GPS signals received by a built-in GPS receiving unit. Ex. 1006 ¶¶ 36, 294, Fig. 22. The mobile station "switch[es] to the positioning by the GPS positioning means in cases where the result of the

positioning based on the communication waves among the base stations and the mobile station exceeds a predetermined positioning error." *Id.* ¶ 36. Figure 23, reproduced below, illustrates this process:

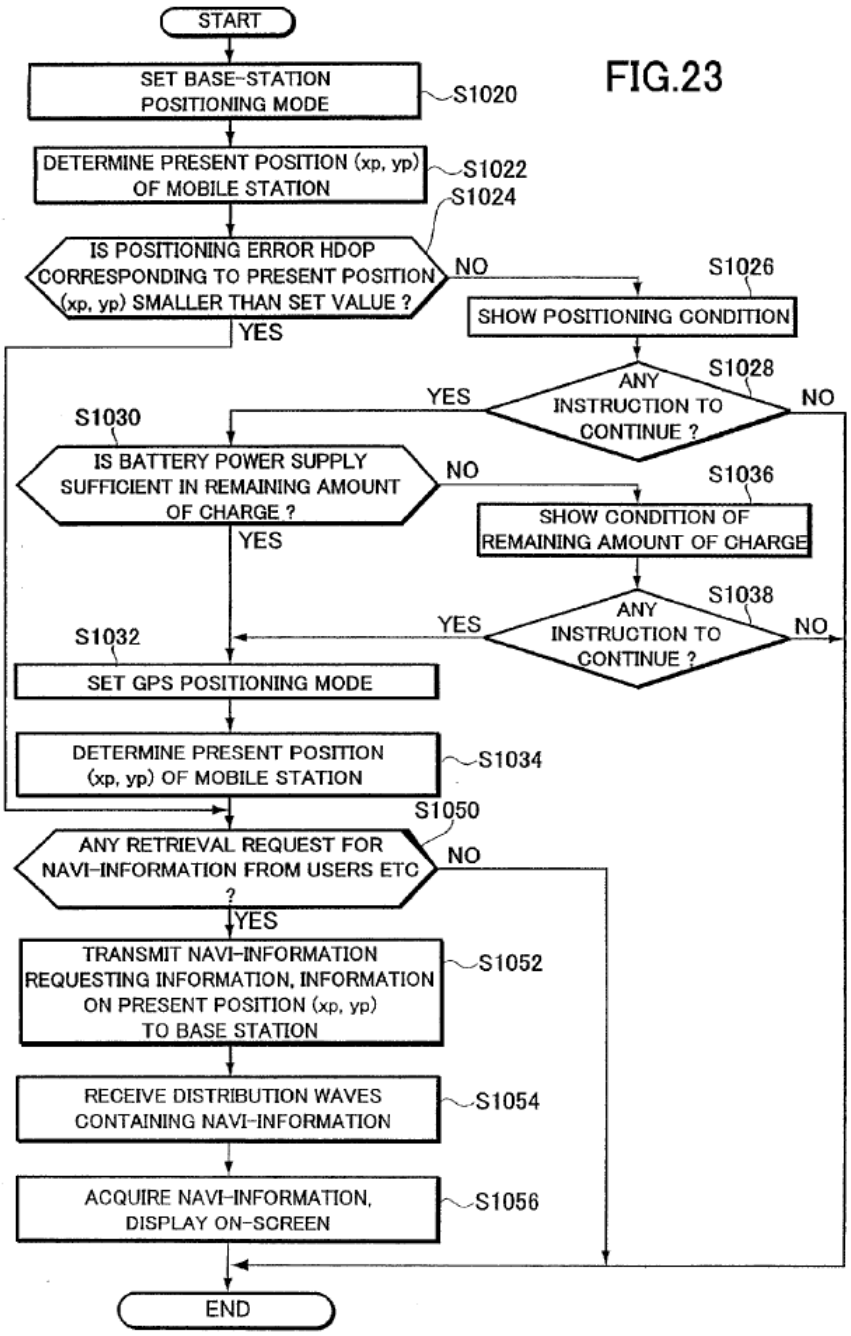


FIG.23

As shown in Figure 23, the mobile station first determines its position using "base-station positioning mode" (wireless signals from cellular-system base

stations) (steps S1020, S1022). *Id.* ¶ 304. At this point in the process, the GPS receiving unit is powered down. *Id.* ¶ 305. Then, at step S1024, the mobile station "determines if the positioning error HDOP obtained upon determination of the present position [in step S1022] . . . is smaller than a predetermined value." *Id.* ¶ 307. According to Nohara, "HDOP" stands for "Horizontal Dilution of Precision," and "shall be regarded as the positioning error quantified on the plane in the horizon system of coordinates." *Id.* ¶ 144. If positioning error is below the predetermined value, "the present position . . . is decided to have high positioning precision, and the positioning operation in the base-station positioning mode is ended." *Id.* ¶ 307.

If, on the other hand, positioning error HDOP is not below the predetermined threshold, a message is displayed to the user indicating that "favorable positioning precision has not been obtained" (step S1026). Ex. 1006 ¶ 310. The positioning error HDOP may also be "converted into a range" and displayed to the user as an error circle ("Cerr") around the determined position, the radius of Cerr equal to the HDOP-equivalent range. *Id.* ¶ 160. Figure 15(b) of Nohara, reproduced below, illustrates how Cerr is displayed:

FIG.15 (b)

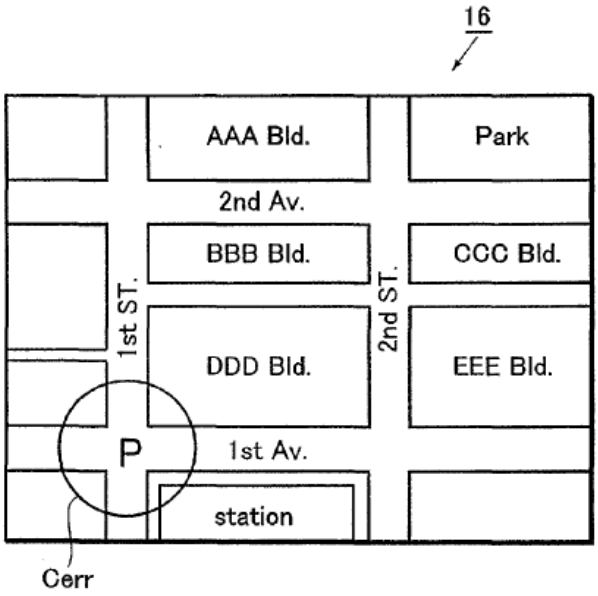


Figure 15(b) of Nohara depicts a street map with the mobile station's position represented by "P" and Cerr represented by a circle surrounding position P to graphically represent positioning error HDOP. *Id.* ¶¶ 159–160.

Having been notified that the position determined from the cellular base stations is not sufficiently precise, the user may then instruct the mobile station to continue positioning operations (step S1028). Ex. 1006 ¶ 311. The mobile station will then verify that the battery has sufficient charge and, if so, will power up the GPS receiving unit and determine position using GPS (steps S1030, S1032, S1034). *Id.* ¶¶ 312, 315.

2. Discussion

a. Undisputed Claim Limitations

Patent Owner does not dispute Petitioner's contentions (Pet. 37–45) that Nohara teaches the preambles to claims 37, 40, and 43, as well as limitations 37[A], 40[A], 40[B], 43[A], and 43[B]. *See generally* PO Resp.

24–27. Patent Owner only disputes that Nohara teaches limitations 37[B], 40[C], and 43[C], which we discuss below.

Having reviewed the record and Petitioner's contentions, we determine that Petitioner has shown by a preponderance of the evidence that Nohara teaches the preambles to claims 37, 40, and 43, as well as limitations 37[A], 40[A], 40[B], 43[A], and 43[B].

b. Limitations 37[B], 40[C], and 43[C]

Petitioner asserts that Nohara teaches the claims under the "disjunctive" interpretation discussed above "because it uses a 'position error' to determine when to switch from cellular based positioning and power on GPS-based positioning." Pet. 46. Petitioner specifically relies on the process illustrated in Figure 23 of Nohara. *Id.* at 46–47. Petitioner contends that "whether the step that turns on the GPS is specifically executed depends on whether the 'position error HDOP' threshold is exceeded." *Id.* at 51 (citing Ex. 1002 ¶¶ 144–145).

Patent Owner responds that "[a]lthough Nohara refers to HDOP as a 'position error' a POSITA would understand that HDOP and 'position error' as the term is used in the claims are not equivalent." PO Resp. 25 (citing Ex. 2001 ¶ 41). According to Patent Owner, "whether . . . HDOP is dimensionless or is 'weighted' to be presented in [units] of distance, it is fundamentally only a statistical distribution of possible position errors from which position error cannot be 'determined' as required by the Claims." PO Resp. 25–26 (citing Ex. 2001 ¶¶ 47–51). Patent Owner thus asserts that "Nohara's HDOP would require additional measurements of signal errors to calculate the claimed position error in addition to HDOP." *Id.* at 26 (citing Ex. 2001 ¶¶ 52–53, 56). According to Patent Owner, "[b]ecause the

relationship between HDOP and position error is not determinative, position error and HDOP cannot be simply substituted for one [another]." *Id.* (citing Ex. 2001 ¶¶ 56–58).

Petitioner replies that Patent Owner's contention that a POSITA would not have understood that HDOP is "position error" is contrary to Nohara's express teachings. Pet. Reply 19–22 (citing Ex. 1042 ¶ 42). Petitioner specifically notes Nohara's teaching to convert "positioning error HDOP into a 'range' to be displayed on a map so that a user can 'check for the degree of precision' in an estimated position." *Id.* at 20 (citing Ex. 1006 ¶ 160, Fig. 15(b)). Petitioner also asserts that Patent Owner's expert's understanding that one of ordinary skill in the art would not consider "position error HDOP" as taught in Nohara to be equivalent to "position error" recited in the claims "strains credulity." *Id.* at 21.

In its Sur-reply, Patent Owner reiterates that "Nohara may choose to call HDOP a 'position error' for its purposes, but a POSITA would understand that the information conveyed by HDOP is not what is meant by the use of 'position error' in the claims of the '206 patent." PO Sur-reply 7 (citing Ex. 2001 ¶ 50). Patent Owner also responds that "Nohara does not relate Cerr to its decision of when to power on GPS," but "only describes the display of Cerr in general terms: 'the display unit 16 makes on-screen display such as the circle Cerr equivalent to the magnitude of the positioning error HDOP.'" *Id.* at 8 (citing Ex. 1006 ¶ 215).

Having reviewed the evidence of record as well as the parties' positions, we find that a preponderance of the evidence supports Petitioner's contention that Nohara teaches determining when said embedded GPS module should be powered on being dependent on a position error per

limitations 37[B], 40[C], and 43[C]. Nohara teaches this limitation because Nohara's mobile station powers up an onboard GPS receiver and obtains a GPS position if, among other conditions, a "positioning error HDOP" exceeds a threshold value. Nohara specifically teaches a process, illustrated in Figure 23, whereby a mobile device that is capable of determining its position using both a wireless cellular network and the GPS system:

(1) determines its position using the cellular network ("using incoming waves from base stations for positioning") while the GPS receiver is powered down (steps S1020 and S1022) (Ex. 1006 ¶¶ 303–306);

(2) determines "the positioning error HDOP obtained upon the determination of the present position" and compares the positioning error HDOP with a threshold ("predetermined set value") (step S1024) (*id.* ¶ 307);

(3) if the position error HDOP is below the threshold, determines that the position has "high positioning precision" and ends the cellular-based positioning operation (*id.*); and

(4) if the positioning error HDOP is above the threshold, notifies the user that "favorable positioning precision has not been obtained," and powers up the GPS receiver and obtains a position using GPS if instructed by the user and sufficient battery charge remains (steps S1026–S1034) (*id.* ¶¶ 310–312).

As summarized by Nohara:

> When the positioning in the base-station positioning mode results in an unfavorable positioning precision, the positioning is switched to the GPS positioning mode which is capable of high positioning precision. When [the positioning in the base-

> station positioning mode] results in a favorable positioning precision, the positioning is carried on in the base-station positioning mode which is low in power consumption.

Id. ¶ 319.

Patent Owner's argument that one of ordinary skill in the art would not have considered Nohara's position error HDOP to be the "position error" recited in the claims is unavailing. Nohara, which as prior art is evidence of a skilled artisan's understanding of this term, clearly considers HDOP to be an indicator of position error. First, it expressly says so: "The value HDOP will be called 'positioning error.'" Ex. 1006 ¶ 147. Second, Nohara correlates the magnitude of "positioning error HDOP" with the "precision" of a position determined using cellular base station signals. That is, "[i]f the positioning error HDOP is smaller than the set value . . . the present position . . . is decided to have high positioning precision," whereas "if the positioning error HDOP corresponding to the present position . . . determined in the base-station positioning mode is greater than the predetermined set value . . . favorable positioning precision has not been obtained." *Id.* ¶¶ 307, 310. Third, Nohara teaches that position error HDOP can be converted to a range than can be used as the radius of an error circle Cerr displayable around the determined position to graphically illustrate the precision of the position determination. *Id.* ¶ 160, Fig. 15(b). Thus, Nohara indicates that one of ordinary skill in the art would consider HDOP to be a way to quantify position error.

Despite Nohara's teachings, Patent Owner contends that HDOP is "not what is meant by the use of 'position error' in the claims of the '206 Patent." PO Sur-reply 7. But it is not clear what Patent Owner considers the claimed "position error"—i.e., "position error . . . determined from a

wireless communications network" that is not GPS—to be. The '206 patent does not define "position error." *See* Tr. 23:24–26. The '206 patent's primary example of position error differs from the claimed position error in that it is determined by comparing a predicted position to the actual position determined by the device's *GPS*, not by a non-GPS wireless network. Ex. 1001, 6:34–46. In fact, the '206 patent does not appear to provide an example of "position error" determined without GPS. In short, we find nothing in the '206 patent to support defining "position error" to exclude Nohara's HDOP.

Further, even if we agreed with Patent Owner that one of ordinary skill in the art would not consider Nohara's HDOP to be a conventional measure of position error, we must still evaluate Nohara "for all that it teaches and not limit it to its specific embodiments." *In re Bode*, 550 F.2d 656, 661 (CCPA 1977). Nohara teaches powering on its GPS receiver dependent on "*positioning error* HDOP" that is "obtained upon determination of the present position" using a wireless cellular system (i.e., that is "determined from the [non-GPS] wireless communications network"). Ex. 1006 ¶¶ 160, 307, 310, 315 (emphasis added). If one of ordinary skill in the art disagreed with Nohara that HDOP is an adequate or appropriate way to determine "positioning error," the skilled artisan would have been aware of other ways of determining position error using a wireless communications network, as Dr. Pullen acknowledges. Ex. 2001 ¶ 24. Because a person of ordinary skill is "a person of ordinary creativity, not an automaton" (*KSR*, 550 U.S. at 421), that person would have considered Nohara's teaching to use "positioning error" as a criteria to power on a GPS receiver in light of other known ways of determining position error. We therefore agree with

Petitioner that the subject matter of this limitation would have been obvious to one of ordinary skill in the art.

3. Ground 2 Summary

Having reviewed Petitioner's contentions and Patent Owner's responses thereto, and for the above reasons, we find that a preponderance of the evidence supports Petitioner's contentions that Nohara teaches all of the limitations of claims 37, 40, and 43. We further determine that the subject matter of these claims would have been obvious over Nohara.

F. Remaining Grounds

Petitioner additionally asserts that: (1) claims 38, 41, and 44 would have been obvious over Watters and Lau; (2) claims 37–45 would have been obvious over Watters and Nohara; and (3) claims 38, 41, and 44 would have been obvious over Watters, Nohara, and Lau. Pet. 37–68. We do not reach these grounds because they would not change our ultimate conclusion that all of the challenged claims are unpatentable. *See Boston Sc. Scimed. Inc. v. Cook Grp. Inc.*, 809 F. App'x 984, 990 (Fed. Cir. 2020) (recognizing that the "Board need not address issues that are not necessary to the resolution of the proceeding," and therefore agreeing that the Board has "discretion to decline to decide additional instituted grounds once the petitioner has prevailed on all its challenged claims").

III. CONCLUSION[11]

For the foregoing reasons, we determine that Petitioner has established by a preponderance of the evidence that claims 37–45 of

[11] Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this

the ’206 patent are unpatentable. Our final decision is summarized as follows:

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decision, we draw Patent Owner’s attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. *See* 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. § 42.8(a)(3), (b)(2).

Claim(s)	35 U.S.C. §	Reference(s)/Basis	Claim(s) Shown Unpatentable	Claim(s) Not shown Unpatentable
37–45	103	Watters	37–45	
37, 40, 43	103	Nohara	37, 40, 43	
38, 41, 44	103	Watters, Lau		
37–45	103	Watters, Nohara		
38, 41, 44	103	Watters, Nohara, Lau		
Overall Outcome			37–45	

IV. ORDER

For the reasons given, it is

ORDERED that, Petitioner has proven by a preponderance of the evidence that claims 37–45 of the ’206 patent are unpatentable; and

FURTHER ORDERED that, because this is a Final Written Decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirement of 37 C.F.R. § 90.2.

IPR2023-01374
Patent RE48,206 E

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